

ANSIBLE: A Network of Social Interactions for Bilateral Life Enhancement, Phase II Project

SBIR/STTR Programs | Space Technology Mission Directorate (STMD)



ABSTRACT

Studies in ground-based analogs of Isolated and Confined Environments (ICE) have identified sensory monotony and social isolation as threats to crew psychological well-being. Further, the lack of real-time communications in future missions will impact crew interactions with their support systems, i.e. family, friends, and colleagues, are critical. ANSIBLE (A Network of Social Interactions for Bilateral Life Enhancement) leverages evidence based strategies to 1) augment asynchronous communications using Virtual Environments (VEs) and facilitate novel interaction methods beyond email, 2) use the inherently immersive and stimuli rich nature of VEs to counteract sensory monotony, and 3) leverages VEs and intelligent Virtual Agents (VAs) as companions and advisors to combat social monotony and detect changes in astronaut psychosocial states can increase astronaut self-awareness, suggest countermeasures, and provide rehearsal scenarios to maintain and enhance interpersonal skills. Along with Dr. Morie, SIFT will leverage its prior work with human communication models and unobtrusive detection of psychosocial dimensions, to enhance VE and VA technologies. The resulting tool will advance the future social landscape that connects the flight crew with Earth, and can be used pre, during, and post flight to connect crew and ground, providing a sense of social consistency and permanence.

ANTICIPATED BENEFITS

To NASA funded missions:

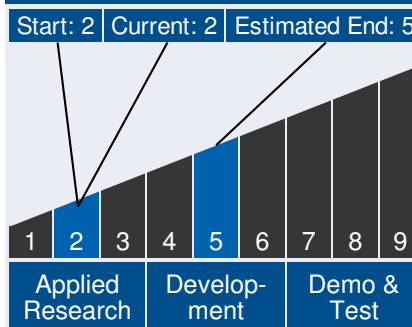
Potential NASA Commercial Applications: Crew members on currently on ISS can email, videocon, or use the IP phone to call anyone at anytime. However, future long duration missions will heavily rely on asynchronous communication due to the expected time delay. ANSIBLE will provide additional methods beyond email to combat social and sensory monotony. While ANSIBLE will have the technologies to accommodate the communication latencies, it can also be used in real time, during



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Technology Maturity



Management Team

Program Executives:

- Joseph Grant
- Laguduva Kubendran

Program Manager:

- Carlos Torrez

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pre- and post-flight when crew and families may be geographically separated (e.g. due to training schedules), thus providing a longitudinal continuum for connecting with their social support systems. Further, VEs are natural environments to provide training, skills maintenance, as well as cooperative experiential learning. VAs are guides and instructors in other domains, and they may be of greater importance to serve in those roles in the context of limited real-time communications.

To the commercial space industry:

Potential Non-NASA Commercial Applications: There are many potential ANSIBLE applications. Military service members can use ANSIBLE to connect with family, friends, and psychological health support before, during, and after deployment. Virtual avatars can function as therapists and not only reach a larger population, but also allow anonymity which has been shown to be a preferred option for many end users. Outside of telehealth, the global military simulation and virtual training market (estimated \$9.03 billion in 2012), and simulation-based learning (revenues estimated at \$2.48 billion by 2015) are natural fits to an ANSIBLE like tool. Further, the growth rate of virtual meetings in companies is estimated to be 80%, with tools like Conversity meetings bringing together global team members for 'face-to-face' exchanges in Second Life. These technologies are expected to expand into eLearning, enterprise social software, and VA assisted online commerce. All these different market segments are potential future markets for ANSIBLE.

Management Team (cont.)

Project Manager:

- Kristine Ohnesorge

Principal Investigator:

- Peggy Wu

Technology Areas

Primary Technology Area:

Human Health, Life Support, and Habitation Systems (TA 6)

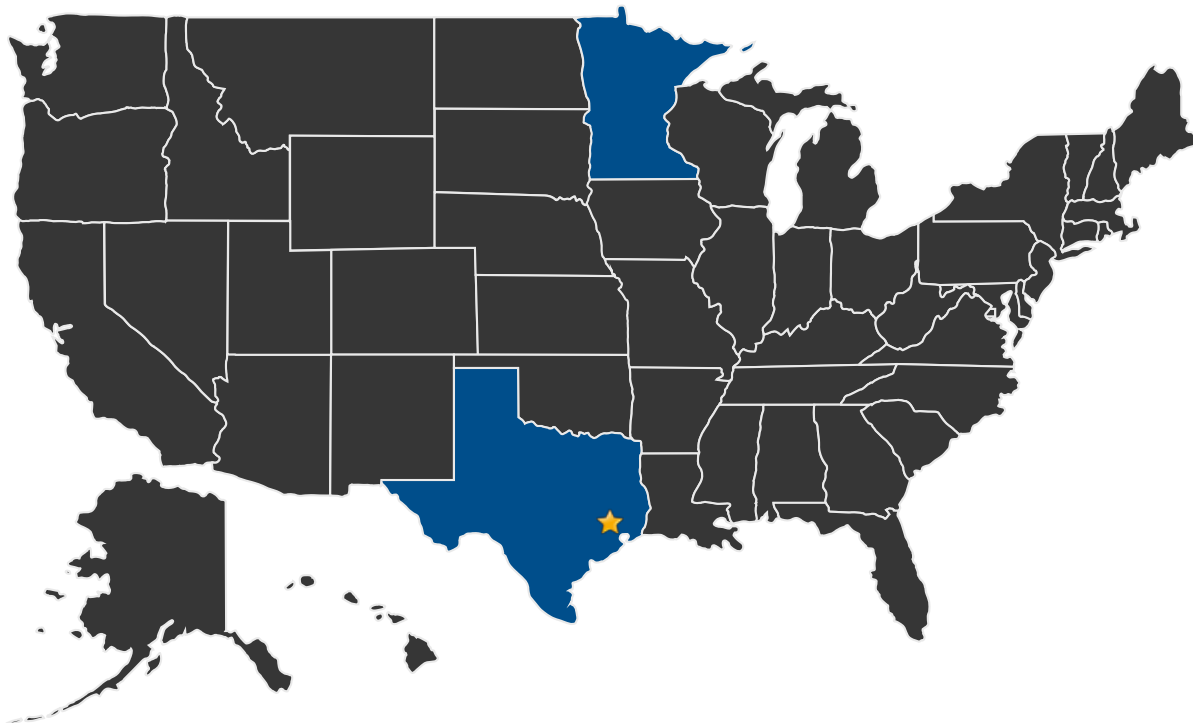
- └ Human Health and Performance (TA 6.3)
 - └ Behavioral Health (TA 6.3.3)
 - └ Countermeasure to Enhance Behavioral Health (TA 6.3.3.6)

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U.S. WORK LOCATIONS AND KEY PARTNERS



■ U.S. States With Work ★ **Lead Center:**
Johnson Space Center

Other Organizations Performing Work:

- SIFT, LLC (Minneapolis, MN)

PROJECT LIBRARY

Presentations

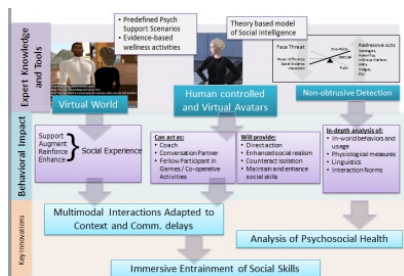
- Briefing Chart
 - (<http://techport.nasa.gov:80/file/23088>)

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IMAGE GALLERY



ANSIBLE: A Network of Social Interactions for Bilateral Life Enhancement, Phase II

DETAILS FOR TECHNOLOGY 1

Technology Title

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Potential Applications

Crew members on currently on ISS can email, videocon, or use the IP phone to call anyone at anytime. However, future long duration missions will heavily rely on asynchronous communication due to the expected time delay. ANSIBLE will provide additional methods beyond email to combat social and sensory monotony. While ANSIBLE will have the technologies to accommodate the communication latencies, it can also be used in real time, during pre- and post-flight when crew and families may be geographically separated (e.g. due to training schedules), thus providing a longitudinal continuum for connecting with their social support systems. Further, VEs are natural environments to provide training, skills maintenance, as well as cooperative experiential learning. VAs are guides and instructors in other domains, and they may be of greater importance to serve in those roles in the context of limited real-time communications.